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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,287	03/23/2004	Chio-Sung Chang	MR1683-535	1850
4586	7590	08/26/2004	EXAMINER	
ROSENBERG, KLEIN & LEE 3458 ELLICOTT CENTER DRIVE-SUITE 101 ELLICOTT CITY, MD 21043			ELKASSABGI, HEBA	
			ART UNIT	PAPER NUMBER
			2834	

DATE MAILED: 08/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/806,287

Applicant(s)

CHANG, CHIO-SUNG

Examiner

Heba Elkassabgi

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5-8 is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Priority***

1. No domestic or foreign priority claimed.

### ***Information Disclosure Statement***

1. No IDS submitted.

### ***Specification***

1. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.
2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: *Rotor core with magnets on the outer periphery of the core having a sine or trapezoidal wave.*

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "12" has been used to designate both two concave portions and body on page 5, second and third paragraphs. Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled

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"Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Figure #2 (#113), Fig #3 (#113), Fig. #5 (113), Fig.#7 (v and t), . Corrected drawing sheets, or amendment to the specification to add the reference character(s) in the description, are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

1. Claims 1,3,4-5,7-8 are objected to because of the following informalities:

There are minor grammatical errors to the claim language. Please see attached listing of claims for errors. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi et al. (US Patent 5936322) and further in view of Matsunobu et al. (US Patent 6242837).

Yamaguchi et al. discloses a rotor (37) for a motor (15) having a body formed by multiple steel sheets (see column 4 lines 4-10) securely abutting one another, each sheet having a through hole centrally defined therein to define a passage in the body for receiving a shaft (27) of the motor and multiple apertures (MP) defined in an outer periphery thereof at equal intervals to define multiple grooves (MG) in an outer periphery of the body, a magnet element (105) securely received in the body (37), each aperture having a bottom (B) and an opening (O) defined on the outer periphery of each of the sheet opposite to the bottom of the aperture. The opening having a width narrower (144,145, see column 5 lines 1-11) than that of the bottom and centrally corresponding to the bottom and a raised portion (RP) extending from the bottom of each of the aperture in each sheets toward the opening. The raised portion abutting a bottom of the magnetic element (105) when the magnetic element is received in the groove (14) in the body for forming a magnetic field due to the rotation of the rotor. However,

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Yamaguchi et al. does not disclose that the rotor core has the magnets placed longitudinally.

Matsunobu et al. Discloses a rotor core (6) having permanent magnets (8) on the periphery of the rotor core (6) in which the core has grooves (10) that forms a sine wave in order to attain compact permanent magnet machine with high efficiency (see column 9, line 3-20).

Since Yamaguchi et al. and Matsunobu et al. are from the same field of endeavor, the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to combine the rotor structure of Yamaguchi et al. with the permanent magnet structure of Matsunobu et al. of forming a sine in order to attain a high efficiency motor

In regards to claim 2, Yamaguchi et al. further discloses that the magnetic element is a permanent magnet (105). In regards to claim 3-4, the two concave portions (CP) portions are respectively defined in two opposite ends of the bottom of each of the aperture and laterally extend relative to each other to centrally the raised portion (RP).

2. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kajimoto et al. (JP 08009599) and further in view of Kawamoto et al. (US Patent 4954736).

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Kajimoto et al discloses a rotor (1) for a motor having a body formed by multiple sheets securely abutting one another, each sheet having a through hole (8) centrally defined therein to define a passage in the body for receiving a shaft (3) of the motor and multiple apertures (MP) defined in an outer periphery thereof at equal intervals to define multiple grooves (14) in an outer periphery of the body, a magnet element (2) securely received in the body (1), each aperture having a bottom (B) and an opening (O) defined on the outer periphery of each of the sheet opposite to the bottom of the aperture. The opening having a width narrower (NW) than that of the bottom and centrally corresponding to the bottom and a raised portion (RP) extending from the bottom of each of the aperture in each sheets toward the opening. The raised portion abutting a bottom of the magnetic element (2) when the magnetic element is received in the groove (14) in the body for forming a magnetic field due to the rotation of the rotor. Furthermore Kajimoto et al inherently teaches that at least the rotor core structure has a sinusoidal flux pattern. However, Kajimoto et al. does not disclose that the rotor core is a silicon steel sheet and that the magnets placed longitudinally.

Kawamoto et al. discloses a rotor core (10) of multiple silicon steel sheets (12) with magnets (17a-17d) longitudinally securely received in a corresponding body on the outer periphery of the rotor core (10) to obtain the desired magnetic force.

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Since Kajimoto et al. and Kawamoto et al. are from the same field of endeavor, the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to combine the rotor structure of Kawamoto et al. having magnets longitudinally secured to the rotor core and the rotor structure of Kajimoto et al. in order to obtain the desired magnetic force.

In regards to claim 2, Kajimoto et al. further discloses that the magnetic element is a permanent magnet (2). In regards to claim 3-4, the two concave (circular like-14) portions are respectively defined in two opposite ends of the bottom of each of the aperture and laterally extend relative to each other to centrally the raised portion (RP).

#### ***Allowable Subject Matter***

The following is an examiner's statement of reasons for allowance:

1. Claims 5-8 are allowed over the prior art, which does not disclose a rotor core having two raised portions from the bottom of an opening on the outer periphery of the core and having three aperture portions with a magnet abutting the bottom of the raised portions.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."




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**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Heba Elkassabgi whose telephone number is (571) 272-2023. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571) 272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Heba Y. Elkassabgi

  
BURTON S. MULLINS  
PRIMARY EXAMINER

United States Patent and Trademark Office  
Patent Examiner  
AU 2834  
Class 310- Electrical Generator/Motor Structure  
Class 290- Prime Mover Dynamo Plants  
Phone (571) 272-2023